DOCUMENT RESUME

ED 229 622 CE 035 983

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TITLE Marine Corps Recruit Training Attrition: The Effect of Realistic Job Preview and Stress-Coping Films.
INSTITUTION Navy Personnel Research and Development Center, San Diego, Calif.
REPORT NO NPRDC-TR-83-18
PUB DATE May 83
NOTE 19p.
PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Coping; *Dropout Prevention; Dropouts; *Evaluation; *Films; Material Development; Military Personnel; *Military Training; *Orientation
IDENTIFIERS Marine Corps; *Recruit Attrition; Stress (Biological)

ABSTRACT

Two films were evaluated to determine their effectiveness in reducing attrition among Marine Corps recruits. The films were a realistic job preview of military training and a stress-coping film. Platoons of Marine recruits were randomly assigned to four treatment groups: viewing the realistic job preview film, viewing the stress-coping film, viewing both films, or viewing neither film (control group). There were no statistically significant differences in recruit training attrition among the treatment and control groups. Attrition rates among the individual platoons, however, differed significantly. Neither film was effective in reducing attrition from Marine Corps recruit training, and unknown factors caused significant differences in attrition rates among recruit platoons. (YLB)

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NPRDC TR 83-18

May 1983

MARINE CORPS RECRUIT TRAINING ATTRITION: THE EFFECT OF REALISTIC JOB PREVIEW AND STRESS-COPING FILMS

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San Diego, California 92152

CE 035 983

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SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER NPRDC TR 83-18	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) MARINE CORPS RECRUIT TRAINING ATTRITION: THE EFFECT OF REALISTIC JOB PREVIEW AND STRESS-COPING FILMS		5. TYPE OF REPORT & PERIOD COVERED Final Report Oct 1979-Oct 1982 6. PERFORMING ORG. REPORT NUMBER 12-83-7
7. AUTHOR(s) William H. Githens James Zalinski		8. CONTRACT OR GRANT NUMBER(s)
9. PERFORMING ORGANIZATION NAME AND ADDRESS Navy Personnel Research and Development Center San Diego, California 92152		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS CF63-521-080-101-04.17
11. CONTROLLING OFFICE NAME AND ADDRESS Navy Personnel Research and Development Center San Diego, California 92152		12. REPORT DATE May 1983 13. NUMBER OF PAGES 19
14. MONITORING AGENCY NAME & ADDRESS(if different from Controlling Office)		15. SECURITY CLASS. (of this report) UNCLASSIFIED 15a. DECLASSIFICATION/DOWNGRADING SCHEDULE

16. DISTRIBUTION STATEMENT (of this Report)

Approved for public release; distribution unlimited.

17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)

18. SUPPLEMENTARY NOTES

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

Realistic job preview
Stress coping
Attrition

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

To reduce recruit training attrition, the Marine Corps had two training films developed: The Beginning, a realistic job preview (RJP) film and Making It, a stress-coping (SC) film. To evaluate the films' effectiveness in reducing attrition, platoons of Marine recruits were randomly assigned to four treatment groups: viewing the RJP film, viewing the SC film, viewing both films, or viewing neither film (control group). There

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S/N 0102-LF-014-6601

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were no statistically significant differences in recruit training attrition among the treatment and control groups. Also, attrition rates among the individual platoons differed significantly.

S/N 0102- LF- 014- 6601

FOREWORD

This research and development effort was conducted within exploratory development work unit CF63-521-080-101 04.17 (Organizational Interventions to Reduce Attrition) under the sponsorship of the Commandant, U.S. Marine Corps (MPI-20). The work was initiated in response to a request from the Manpower Management Research and Measurement Section of the Manpower Management Information Systems Branch. Although the main thrust of this work unit is to develop attrition-reducing interventions and then evaluate them, there was a need to evaluate an intervention that had already been developed outside the work unit. This report covers that evaluation.

Appreciation is expressed for the fine cooperation of COL Henry C. Stackpole and LTCOL Ray D. Ammon of the Recruit Training Depot, San Diego. CAPT Michael Nolan and his staff at the Receiving Barracks ably arranged for the random asignment of platoons to experimental conditions. SGT John Forby, CPL Bryan Fros, and CPL Colleen Donahue, who are on the staff of MAJ Richard B. French of the Information System Management section, were all exceptionally helpful in determining the success-failure criterion status of the 6692 recruits involved in this study.

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SUMMARY

Problem

Marine Corps recruits who do not have realistic expectations about the Corps or adequate stress-coping skills may be more likely than other recruits to fail recruit training. Thus, in an attempt to reduce attrition, the Marine Corps contracted for two training films to be produced. One film, entitled The Beginning, presents a realistic job preview (RJP) of military training; and the other, entitled Making It, methods to enhance stress-coping (SC) skills. These films had not been evaluated for reducing recruit attrition at the Marine Corps Recruit Depot (MCRD), San Diego.

Purpose

The purpose of the research reported here was to evaluate the effectiveness of the two films for reducing attrition among Marine Corps recruits stationed at MCRD, San Diego during their initial 70-day basic training period.

Approach

Recruit platoons were randomly assigned to one of four treatment groups: (1) those who viewed only the RJP film, (2) those who viewed only the SC film, (3) those who viewed both films, and (4) those who viewed neither film (control group). The platoons were assigned to one of these four conditions during their initial processing and before actual recruit training. Upon completion of training, the numbers of recruits who failed to complete training in each treatment group were compared.

Results

1. There were no significant differences in recruit attrition among treatment groups.

2. Significant differences in attrition rates among platoons were encountered.

Conclusions

1. Whether viewed alone or in combination, neither film is effective in reducing attrition from Marine Corps recruit training. The control exercised in the San Diego study and the results of previous research constitute strong evidence that viewing the films makes no difference on attrition.

2. Unknown factors are causing significant differences in attrition rates among recruit platoons.

Recommendations

1. The Marine Corps should not administer the two films during the administrative period before recruit training, if the only purpose for doing so is to reduce attrition during basic training.

2. The Marine Corps should consider directing research toward identifying the causes of the significant differences in attrition rates among platoons.

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INTRODUCTION

Problem

Marine Corps recruits who do not have adequate stress-coping skills or realistic expectations about the Corps may be more likely than other recruits to fail recruit training. To reduce attrition of recruits during initial training and first-term service, the Marine Corps recently had two films produced. One film, entitled The Beginning, presents a realistic job preview (RJP) of military training. The other, entitled Making It, describes methods for coping with the stress of recruit training. However, the films' effectiveness for reducing attrition among Marine Corps recruits at the Marine Corps Recruit Depot (MCRD), San Diego had not been evaluated.

Purpose

The purpose of the research reported here was to evaluate the effectiveness of the two films for reducing attrition among Marine Corps recruits stationed at the MCRD, San Diego, during their 70-day basic training period.

Background

The Beginning is an 80-minute film adapted in 1980 by the staff of MCRD, San Diego, from a film originally made for the Parris Island Recruit Depot (Horner, Meglino, & Mobley, 1979). Its purpose was to depict accurately the sequence of recruit training, from the recruits' arrival in San Diego, through initial platoon assignment and early training, to basic training graduation. Instead of professional actors, recruits themselves were used in the film to make the presentation more realistic. Because recruit attrition is somewhat higher early in training, events from this period were presented in greater detail than were later events. Special attention was directed to aspects of training identified as causing the greatest concern among recruits, such as physical and academic tests, inspections, and interactions with staff personnel. The Beginning was designed to provide a realistic overview of initial training by (1) describing what drill instructors expect of recruits, (2) acquainting recruits with the rationale for specific procedures, and (3) giving advice on how to cope with the demands of initial training.

Results of students measuring the influence of RJP films on attrition have been inconsistent. Horner et al. (1979) found that Marine recruit attrition assessed at graduation from recruit training was 10.3 percent for groups that viewed the RJP film, compared to 14.9 percent for groups that did not. Although practically significant, the difference was not statistically significant due to the small number of recruits in the experimental group (N = 124). Similarly, Wanous (1980) found that job turnover was usually lower for persons shown RJP films.

After the research reported here began, Lockman (1980) assessed an RJP film adapted from The Beginning for the Navy Recruit Training Commands at San Diego, California and Great Lakes, Michigan. He showed that the videotape made no difference in Navy recruit attrition at either location.

The stress-coping (SC) film, Making It, is a 25-minute film developed in 1978 by Dr. Irwin Sarason of the University of Washington. This film, which was designed to prepare recruits for the demands of basic training, was grounded in research on several techniques typically used by adolescents for coping with stress (Novaco, Cook, & Sarason, 1983). Its underlying premise is that certain dynamic methods of coping can be learned

and used in various combinations. Among the coping methods taught in the film are knowing (1) what is expected, (2) how to focus attention on a task, (3) how to "talk to oneself" when under stress, and (4) how to cooperate with other people.

Sarason's studies with university students and police academy students indicated that training in coping with stress can increase effectiveness of job performance and coping with stress (1976, 1978, 1980). The SC training used a variety of techniques, including a videotape of models portraying adaptive behaviors.

Realistic job previews and stress training might reasonably be expected to affect many aspects of recruit performance. Horner et al. (1979) suggested that the effects of such training may be measured with dependent variables such as (1) attitudes, (2) performance scores, (3) measures of "met expectations," and (4) attrition rates. However, to remain consistent with original objectives for the films, the research reported here was limited to measures of attrition assessed at graduation from recruit training. Additional variables, such as amount of education and aptitude scores, were evaluated only to assess the comparability of treatment groups.

APPROACH

Sample

The original sample consisted of 6692 male Marine Corps regular recruits, assigned to 83 platoons, that began basic training at MCRD, San Diego, mostly between June and July 1980. (Since high school graduation and the end of the traditional school year occur early in June, these recruits represented the additional numbers of high school graduates characteristic of this annual cycle.)

Recruits were assigned to platoons in the normal operational fashion, based primarily on their date of arrival at MCRD. The number of recruits within a platoon ranged from 65 to 95, with a mean of 80.63. However, 78 of the 83 platoons included between 75 and 81 recruits.

As shown in Table 1, each platoon was assigned to one of four treatment groups: (1) those who viewed only the RJP film (20 platoons--1619 recruits), (2) those who viewed only the SC film (20 platoons--1609 recruits), (3) those who viewed both films (22 platoons--1767 recruits), and (4) those who viewed neither film and were used as a control group (21 platoons--1697 recruits). Of the original sample, data for 25 recruits were eliminated due to incorrect or incomplete coding; and data for nine others, because they were being held in other than a training category at the completion of this research. Thus, the adjusted sample used for analysis consisted of 6658 recruits (see Table 1).

Preliminary study indicated that sample sizes in the treatment groups were large enough so that an obtained difference of 2 percent in relative attrition rates among the groups would be statistically significant. Marine Corps managers had stated that a difference of 2 percent would have practical significance.

Platoons undergo 3 to 5 days of administrative processing, a nonstressful period, before beginning recruit training. The films were presented to entire platoons over closed circuit video monitors during the first 3 days of administrative processing. Accordingly, all recruits within each platoon received a common treatment.

Table 1

Assignment of Recruits to Treatment Groups

Recruits	Treatment Group: Viewed Realistic Job Preview Film (N = 20 Platoons)	Viewed Stress-coping Film (N = 20 Platoons)	Viewed Both Films (N = 20 Platoons)	Viewed Neither Film (N = 21 Platoons)	Total Total (N = 83 Platoons)
Original sample	1619	1609	1767	1697	6692
Recruits with incomplete data	11	6	5	3	25
Transferred recruits[a]	3	0	3	3	9
Adjusted sample	1605	1603	1759	1691	6658

[a]These recruits were not in training and not separated from the Marine Corps at the end of the data reporting period.

Analyses

Attrition, the dependent variable used in the following analyses, was recorded as a binary variable (0 = retained, 1 = attrited). Although about 10 percent of the recruits were set back at some point to repeat part of their training, they were included in the analysis because the criterion used was "retention," or "attrition," regardless of whether recruits were set back or not. A 2-by-4 chi square, retention vs. attrition by treatment group, was computed for a preliminary analysis.

Since platoons, rather than individual recruits, were assigned to treatment groups, an analysis of variance (ANOVA) (RJP by SC by platoon) was computed on the binary attrition variable. If attrition rates among platoons within the same treatment groups did not differ, it would be appropriate to compute an RJP group by SC group ANOVA on the attrition variable. However, if platoon rates did differ significantly, it would be more appropriate to compute an RJP group by SC group ANOVA on mean platoon attrition rates. Based on these guidelines, the appropriate analyses were used to determine whether the experimental variables (seeing the films vs. not seeing the films) were significantly related to attrition.

RESULTS AND DISCUSSION

Table 2 presents the number of recruits within each treatment group who successfully completed basic training and the number who attrited. As a first test of the treatments' effects, a chi-square analysis was performed on these data. Results showed no differences in attrition rates among the four treatment groups (χ^2 (3 df) = 2.46, $p > .50$).

Table 2

Recruit Retention vs. Attrition by Treatment Group

		Treatment Group				
Recruits		Viewed Realistic Job Preview Film	Viewed Stress-coping Film	Viewed Both Films	Viewed Neither Film	Total
Retained	N	1419	1442	1557	1503	5921
	%	88.4	90.0	88.5	88.9	88.9
Attrited	N	186	161	202	188	737
	%	11.6	10.0	11.5	11.1	11.1
Total	N	1605	1603	1759	1691	6658
	%	100.0	100.0	100.0	100.0	100.0

Note. Chi-square test of significance: χ^2 (3 df) = 2.46, $p > .50$.

However, as noted previously, this analysis is inappropriate if attrition rates among platoons receiving the same treatments differed significantly. Thus, since an F test indicated that there were significant differences in attrition rates among the platoons ($F = 1.64$, $df = 79/6575$, $p < .01$), further ANOVAs on attrition rates were computed on platoon means. The number of platoons and the mean of the platoon attrition means for each treatment condition are shown in Table 3.

As a second test of the treatments' effects, an ANOVA performed on the data presented in Table 3 (i.e., on platoon mean attrition rates by treatment group). Results, which are displayed in Table 4, are in agreement with the chi-square analysis: There was no significant difference in mean attrition rates between groups of platoons viewing and not viewing the RJP film. Further, there was no difference in mean attrition rates among platoons viewing or not viewing the SC film. Similarly, the test of the RJP by SC interaction effect revealed no significant residual differences among the four treatment groups. Because unequal variances were involved and the platoon mean attrition rate was essentially a proportion, the ANOVA was repeated using an arcsine transformation (Winer, 1971). Again, no significant differences were found among the treatment group means ($F_{RJP} = 1.41$, $df = 1/79$, $p > .20$; $F_{SC} = .72$, $df = 1/79$, $p > .35$; and $F_{RJP \times SC} = .50$, $df = 1/79$, $p > .50$).

As a final test of treatment effectiveness, on the basis of prior hypotheses, five one-tail t tests were computed upon the dependent variable of platoon mean attrition rates, comparing the various treatment groups to their appropriate controls. Results, presented in Table 5, are described below:

1. As shown, the mean attrition rate of the platoons viewing the RJP film was actually 1.19 percent higher than the mean rate of the platoons not viewing it. Accordingly, a one-tail t test could not be computed based on a prior hypothesis of lower attrition among platoons viewing the RJP.

Table 3

Platoon Mean Attrition Rates by Treatment Group
(N = 38 platoons)

	Viewed Realistic Job Preview Film		
Viewed Stress-coping Film	Yes	No	Mean of Cell Means
Yes	$\bar{X}$ = .116 N = 22	$\bar{X}$ = .099 N = 20	$\bar{X}$ = .108
No	$\bar{X}$ = .118 N = 20	$\bar{X}$ = .112 N = 21	$\bar{X}$ = .114
Means of cell means	$\bar{X}$ = .117	$\bar{X}$ = .105	

Table 4

Platoon Mean Attrition Rates by Treatment Group--Analysis of Variance Summary
(N = 83 platoons)

Source of Variation	SS	df	MS	MS numerator / MS denominator	F[a]	p
Realistic Job Preview Film	.003	1	.00311	MS (RJP) / MS (platoon)	.523	>.20
Stress-coping Film	.001	1	.00115	MS (SC) / MS (platoon)	.565	>.40
RJP x SC	.001	1	.00058	MS (RJP x SC) / MS (platoon)	.284	>.50
Platoon	12.671	79	.00204			

[a]These F values were computed using the regression procedure offered by an SPSS software package, version 7.0. Using this method, the sums of squares attributed to each treatment effect are corrected for colinearity introduced by unequal sample size.

Table 5

One-tail t Tests of the Effectiveness of Treatment for Reducing Attrition Rates

	Treatment Group	Platoon Mean Attrition Rate	N of Platoons	t Value	df	P (one-tail)
1.	Realistic job preview film vs. no RJP film	.1172 .1053	42 41	—[a]	81	—[a]
2.	Stress-coping film vs. no SC film	.1079 .1148	42 41	.70	81	>.20
3.	RJP film only vs. Control	.1162 .1115	22 21	—[a]	41	—[a]
4.	RJP and SC films vs. Control	.1183 .1115	20 21	—[a]	39	—[a]
5.	SC film only vs. Control	.0987 .1115	20 21	.97	39	>.15

[a]The one-tail t value has not been computed because the direction of difference is opposite to that predicted by prior hypothesis.

2. The mean attrition rate of the platoons viewing the SC film was .69 percent lower than the mean rate of the platoons not viewing it. However, the difference was not significant.

3. The mean attrition rate of the platoons viewing only the RJP film was .47 percent higher than the mean rate of the control group. Given this higher attrition rate and prior hypothesis predicting a difference in the opposite direction, a one-tail t test could not be computed.

4. The mean attrition rate of the platoons viewing the RJP and SC films was .68 percent higher than the mean rate of the control group. Again, given this higher attrition rate and prior hypothesis predicting a difference in the opposite direction, a one-tail t test could not be computed.

5. The mean attrition rate of the platoons viewing only the SC film was 1.28 percent lower than the mean of the control group. However, the t test of the difference was not significant.

As indicated previously, an F test identified significant differences in attrition rates among platoons within the same treatment group. Similar analyses revealed that platoons within the same treatment group also differed significantly in terms of two variables hypothesized to be related to attrition rate: mean years of education ($F = 1.54$, $df = 79/6575$, $p < .01$) and mean Armed Forces Qualification Test (AFQT) mental category ($F = 1.44$, $df = 79/6575$, $p < .01$). Since results of these last two analyses suggest that recruits are not assigned to platoons on a random basis, it is difficult to infer other training causes for the difference in attrition rates among platoons.

To see whether nonrandom assignment of the education and AFQT category variables could account for the lack of treatment effectiveness, ANOVAs were repeated on treatment groups using mean years of education and mean AFQT mental category as the dependent variables. Table 6 presents the means and sample sizes by treatment group for these variables; and Table 7, the results of the ANOVAs. Since no significant differences were found among the treatment group means with respect to either variable, neither accounts for the lack of treatment effectiveness.

Table 6

Platoon Mean Years of Education and AFQT Mental Category
(N = 83 platoons)

	Viewed Realistic Job Preview Film		
Viewed Stress-coping Film	Yes	No	Mean of Cell Means
	Years of Education		
Yes	$\bar{X}$ = 11.85 N = 22	$\bar{X}$ = 11.85 N = 20	$\bar{X}$ = 11.85
No	$\bar{X}$ = 11.83 N = 20	$\bar{X}$ = 11.87 N = 21	$\bar{X}$ = 11.85
Means of cell means	$\bar{X}$ = 11.84	$\bar{X}$ = 11.86	
	AFQT Mental Category		
Yes	$\bar{X}$ = 2.76 N = 22	$\bar{X}$ = 2.76 N = 20	$\bar{X}$ = 2.76
No	$\bar{X}$ = 2.70 N = 20	$\bar{X}$ = 2.75 N = 21	$\bar{X}$ = 2.72
Means of cell means	$\bar{X}$ = 2.73	$\bar{X}$ = 2.76	

Table 7

Platoon Mean Years of Education and AFQT Mental Category
Analysis of Variance Summaries
(N = 83 platoons)

Source of Variation	SS	df	MS	MS numerator / MS denominator	F	p
			Years of Education			
Realistic Job Preview Film	.007	1	.0072	MS (RJP) / MS (platoon)	.598	>.40
Stress-coping Film	.001	1	.0005	MS (SC) / MS (platoon)	.045	>.80
RJP x SC	.009	1	.0088	MS (RJP x SC) / MS (platoon)	.736	>.40
Platoon	75.779	79	.0120			
			AFQT Mental Category			
RJP Film	.015	1	.0147	MS (RJP) / MS (platoon)	2.315	>.10
SC Film	.020	1	.0199	MS (SC) / MS (platoon)	3.138	>.05
RJP x SC	.008	1	.0082	MS (RJP x SC) / MS (platoon)	1.289	>.26
Platoon	39.9150	79	.0064			

CONCLUSIONS

1. Whether viewed alone or in combination, neither the RJP film (The Beginning) nor the SC film (Making It) is effective in reducing attrition from Marine Corps recruit training. The evidence for this conclusion is substantial. This study was well controlled and of sufficient magnitude to allow any positive effect on attrition to be exhibited. In addition, the studies cited previously indicate no actual decrease in attrition when films were used at the start of recruit training. Horner et al. (1979) found no statistically significant decrease in attrition of Marines at Parris Island Recruit Depot, and Lockman (1980) found no decrease in attrition when RJP films were used at the Navy Recruit Training Commands in San Diego and Great Lakes.

2. Unknown factors are causing significant differences in attrition rates among recruit platoons.

RECOMMENDATIONS

1. The Marine Corps should not administer the two films (The Beginning and Making It) during the administrative period before recruit training, if the only purpose for doing so is to reduce attrition during basic training.

2. The Marine Corps should consider directing research toward identifying the causes of the significant differences in attrition rates among platoons.

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